PRE-REHABILITATION PLAN
Rat Lake and Associated Waters

I. PROPOSAL

A. Justification for Proposed Rehabilitation

1-2. Rat Lake near Brewster, WA, is managed for a rainbow trout and brown trout fishery that is a winter bait fishery December through March, and a catch and release-selective gear fishery April through November. Angler interest for the selective gear fishery has increased directly with public awareness. It is likely the fishery will equal or surpass the effort of the winter bait fishery. The winter fishery probably supports about 50 angler trips per week. Most anglers for the winter fishery are local to north-central Washington. The catch and release season has a whole different following, with about half the anglers being local and the other half being out of area. Estimated effort for the new catch and release season is 25-50 angler trips per week.

The lake was rehabilitated in 2005 because of a stunted brown bullhead population that was severely impacting the crayfish and trout populations.

Two 50 ft. gill nets, set over night in Rat Lake and Mouse Pond, contained an abundance of brown bullhead. The size of the brown bullheads indicated a stunted population and the thinness of the carryover trout indicated the catfish had severely reduced the population.

Rat Lake has a fairly clean precipitous shoreline. Most of the surrounding land is rangeland that is undeveloped except for a boat ramp and parking area. Inflow can be between 5 - 10 cfs, whereas outflow through seepage and leaks at the dam boards total 1.5 - 2.0 cfs. Toxicant will kill fish in Whitestone Creek down to the gravel yard where flows go subsurface. Restocking of Whitestone Creek may be necessary unless potassium permanganate drip is available to inactivate the rotenone. The outfall to Rat Lake will probably be dry due to severe drought conditions within the last three years, which should prevent any of the toxicant from getting into Whitestone Creek.

3. Primary management of these waters is for trout only.

4. Lake rehabilitation with rotenone was a mostly successful management tool for Rat Lake 10 years ago, which was the last time rehabilitation of this water, was necessary.

B. Physical Description of Water Proposed for Rehabilitation

1. WATER: Rat Lake and connecting waters (Mouse Pond)
2. LOCATION: Sec 22, T31N R24E, Okanogan Co.
3. SURFACE ACRES: 71
4. MAX. DEPTH: 71
5. VOLUME: 5,041 acre feet 8,276,000,000 lbs water
6. OUTLET: Whitestone Creek
7. STREAM: MILES N/A FLOW (cfs)
8. PUBLIC ACCESS: Public parking and boat launch
9. LAND OWNERSHIP: Public 5% WDFW; Private 95%;
10. ESTABLISHED RESORTS: None.

C. Proposed Management Actions

1. WATER: Rat Lake
2. TARGET SPECIES: brown bullhead catfish
3. DATE LAST REHABED: May 2005

4. PROPOSED TREATMENT DATE: October/November 2015
5. REPLANTING DATE: Late-spring 2015
6. SPECIES: rainbow trout and brown trout
7. CATCHABLES: 8,000 rainbow and 2,000 brown trout
8. PROPOSED TOXICANT: Rotenone, powder and liquid CONCENTRATION: 3 ppm
AMOUNT (ROTENONE AT 5% ACT. INGRED): 26,000 lbs., 50 gal.
9. METHOD OF APPLICATION: outboards - tow sack; pumper boat - slurry and spray; ATV with sprayer; small boat with tow sack
10. CREW DESCRIPTION: Leader(s) Ryan Fortier, Personnel 6-8

II. PURPOSE:

Rat Lake has been managed as lowland lake trout water since the 1950's. Complete rehabilitation is the only feasible method of restoring these waters to this type of management scheme. In addition, the crayfish population that can support quality trout has been diminished excessively from the heavy concentration of brown bullhead catfish.

III. INTENDED OUTCOME/MEASURE OF SUCCESS:

We intend to restore Rat Lake to its popular harvestable trout fishery, and improve its popularity by maintaining quality trout for the spring catch and release season. Success of this measure will be apparent during annual creel surveys. Given a reasonable chance of eliminating the populations of undesirable species, the beneficial effects should be everlasting.

IV. RESOURCE IMPACTS:

1. Target species: brown bullhead catfish

2. District and Regional Habitat, Wildlife and Non-Game biologists have been apprised of our rehabilitation plans. No objections were raised, and only cautionary concerns were expressed on the potential impacts to non-targeted species.

According to Bradbury (1986), the effects of rotenone on benthos are variable, depending on the concentrations and species. Crustaceans are most tolerant while the smaller insects are most affected. Immediate reduction of populations averages 25%, and survival doubles when access to bottom sediments exists. Benthic communities generally recover to at least pretreatment levels within two months. Zooplankton is more severely impacted, and communities generally take two to twelve months to fully recover. While relatively tolerant of even heavy doses of rotenone, amphibians (especially larval) are at risk, and herptiles are affected somewhat less so. Almost no chance of eliminating an entire population exists.

3. Participation in the trout fisheries should exceed that currently found for existing fisheries, particularly since the new regulation cycle 2000-2001 allows for a catch and release season April through November. Steep ridges surround most of the lake, and this coupled with the depth provide cold water even in the heat of summer. Its remote location within Whitestone Canyon, but easy and quick access from Brewster, make it aesthetically pleasing and angler use will increase if we continue to provide quality angling opportunity.

4. Professional biologists and other naturalists have visited this site frequently over the past 50 years. To our knowledge, no endemic, rare, threatened or otherwise listed species will be negatively impacted by the rehabilitation.

V. MITIGATING FOR ADVERSE IMPACTS:

1. Trout survival and growth will be greatly enhanced. No removal of dead fish is planned as the nutrient base contained therein is best returned to the lake. Disturbance of waterfowl during treatment or by the anticipated fishery will be offset by increased food availability as the uncontrollable numbers of spiny-rayed fishes are eliminated in favor of easily balanced populations of trout. It is in the interest of all species being managed to refrain from over-taxing the food-base.

2. Although the lake will be filling from snow pack run-off via Whitestone Creek, this can enhance mixing and increase success of complete kill.

3. No endemic, rare, threatened or otherwise listed species are known to inhabit this area.

4. Protective gear for the eyes, face, hands and clothes will be supplied on-site for all purveyors of rotenone.

5. The lake will be posted according to Department of Ecology guidelines to notify the public of the treatment and discourage the public from possessing or consuming dead fish. The landowners will be notified of the rehabilitation and consequent exposure of livestock to rotenone.

VI. RECREATIONAL IMPACT: also see I.A., II and III

Recreational angling opportunity will be increased if the brown bullhead catfish are removed from Rat Lake. The level of participation will dwindle to almost nothing if no action is taken immediately. Given the success of the planned management action, as many as 2,000 angler trips are estimated for the season. Anglers should average about five fish per trip on during the winter season. Yearling trout should average about 12 inches. Carryovers should be expected to be about 20 percent of the catch, and average 15 inches for 2-year-old fish.

VII. ECONOMIC IMPACTS:

Rehabilitation would restore the fishery and associated economic activity. An estimated 2,000 or more trips will be made to Rat Lake as a result of the proposed management action, with an economic impact totaling $64,000.00 per year (2011 dollars; based on the U.S. Fish and Wildlife Service 2011 National Survey of Fishing, Hunting, and Wildlife-associated Recreation estimate of $32 per trip). Fingerling plants will cost the agency $1000, but is far less than the $20,000 it will cost to produce the larger fish needed to counteract the presence of competing spiny ray species.

The cost of treatment is about $15,000.00, which is recovered within two years of treatment. Local economy is stimulated within the first year.

VIII. RELATED MANAGEMENT ACTION:

Approximately 8,000 catchable-sized rainbow and brown trout will be stocked in early spring following the rehabilitation to provide opportunity for the popular catch and release program. Creel checks will be done annually on both the harvest and catch and release seasons, and population surveys will be made, as time is available.

IX. PUBLIC CONTACT:

Public concern over the increasing numbers of lakes in Okanogan County with undesirable species infestations prompted this action.

A public meeting will be held at the Okanogan PUD Office on July 31, 2015 to discuss the proposed treatment for Rat Lake. Other public meetings will be held in Cusick, Cheney and Olympia.

Initiated by: Region Two Fisheries Management